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ADVANTAGES OF ERTS DATA COLLECTION SYSTEM IN SOUTH FLORIDA

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By

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- a. Title: Advantages of ERTS Data Collection Systems in South Florida  
ERTS-1 Proposal MMC 272
- b. GSFC ID No. of P.I.: I414
- d. In this reporting period additional rain gages were installed at 3 existing DCP's (Data Collection Platforms). A DCP was installed at a tidal station in Tampa Bay (see section k). An invitational bid on a data memory device, talked about in earlier progress reports, was circulated. The memory device will interface with the DCP to store data for transmission at a later time.
- e. The ERTS Data Collection System has obvious advantages for collecting data over conventional methods now in use. It is also a means to accomplish objectives which are impractical to do otherwise.

At the present, the Water Resources Division of the U. S. Geological Survey collects data from various types of hydrologic monitoring stations such as discharge stations, water quality monitoring stations, time of travel studies, water surface elevation, deep well pressure, etc. The stations are visited periodically to remove the record, to service the station, and to insure against lost record if the station was not operating. In remote areas of south

Florida this becomes a costly operation when access to the station is by air boat or helicopter. By use of ERTS DCS, visits to the station could be limited to once a year or longer, provided there is no failure at the station.

If there is a failure at the station another advantage to ERTS DCS is recognized. The malfunction becomes obvious on the teletype printout just hours after the failure (teletype messages are received in the office approximately 45 minutes after a pass by the satellite). There have been cases when field men have left stations operating then returned to the stations a month or so later to find that the recorder had run only a few hours. This will not happen with DCS since the failure would be known the day it occurred and could be repaired at that time. There have been other instances where stations were vandalized or the entire station stolen. At a conventional station all record would be lost. At DCS stations the teletype record transmitted each day prior to the theft would be intact and notification of the problem would be made.

Many of the present hydrologic monitoring stations which monitor several parameters often require duplication of the recorder equipment and obvious duplication in analysis of the records. A direct advantage of DCS is digital formatting of the parameters for direct input to computer terminals or mini-computer facilities. Errors are eliminated in transposing the data from charts by hand or by digitizing the records.

Of course, an important advantage of ERTS DCS is the timeliness that data is received in the office. Often times in south Florida data is needed on a daily basis for management of large water conservation areas. Even though there may be a time lag in correcting a management problem,

the more quickly a problem is diagnosed the faster corrective action can be applied and effected. ERTS DCS has better than daily frequency and thereby gives those concerned a close cognizance of the water management problems.

ERTS DCS also permits phasing out of certain chart recorders. For example, a tipping bucket rain gage can now be connected directly to the DCP for the transmission of integrated precipitation data without the use of a recorder. In the few months of DCS operation (October 1972 to June 1973) the majority of malfunctions have been due to recorder clock failure. Therefore, removal of a recorder would eliminate the possibility of recorder failure as well as be a savings in output for equipment.

As mentioned previously, access to stations is very costly in remote areas. Because of this cost, stations have previously been deployed in areas where they could be easily serviced and not necessarily where they should have been deployed to obtain the type of data needed. ERTS DCS permits the station to be deployed in almost any location.

Another valuable feature of DCS is its ability to relay data to the users in severe weather conditions. During a hurricane or flood resulting from a hurricane the tide, inland water levels, precipitation, and wind speed and direction could be relayed for immediate use. The signals transmitted by DCS are not affected by weather conditions.

ERTS DCS can be used for other activities which now are not feasible to accomplish otherwise. For instance, DCS would be a valuable tool for monitoring or managing a cloud seeding project. As clouds are seeded the effects could be known almost immediately thereafter and other

measures applied if necessary. ERTS DCS could also be used for the further defining of diurnal curves for pH, D.O., etc. And, of course, there are many other uses of ERTS DCS which cannot be foreseen at this time.

k. Status of Data Collection Platforms. The location of a new installation is noted below:

<u>DCP Serial No.</u>	<u>State</u>	<u>County</u>	<u>Town</u>	<u>Latitude</u>	<u>Longitude</u>
6141	Florida	Hillsborough	Tampa	27 46'57"N	082 25'53"W

f.-j. Nothing to report